Relationship between Knowledge and adherence to Use of TB Drugs in adults in Idaman Banjarbaru Hospital

(*Hubungan Pengetahuan terhadap Kepatuhan Minum Obat TBC Dewasa di RSD Idaman Banjarbaru*)

Helmina Wati[1*], Guntur Kurniawan[2], Faizah Abdurrahman[2]

[1]Study Program of Pharmacist, Faculty of Pharmacy, Borneo Lestari University, South Kalimantan, Indonesia.
[2]Study Program of Pharmacy, Faculty of Pharmacy, Borneo Lestari University, South Kalimantan, Indonesia.
[*]E-mail: helminawati@unbl.ac.id

Corresponding Author:
Helmina Wati
Program Studi Pendidikan Profesi
apoteker
Fakultas Farmasi
Universitas Borneo Lestari
Banjarbaru
70714
Indonesia
email: helminawati@unbl.ac.id

ABSTRACT

Background: Tuberculosis (TB) is the disease that causes the highest mortality worldwide. One of the causes is the bacteria *Mycobacterium tuberculosis*. Knowledge and adherence are very important in TB treatment to achieve therapeutic success. **Objectives**: This study aims to see the relationship between the level of knowledge and adherence to taking medication for adult TB patients at Idaman Banjarbaru Hospital. **Methods**: This type of research is descriptive research with a cross-sectional research design, prospectively taken in March–June 2023. The total sampling technique was employed to select 42 patients. The data were collected via a validated online questionnaire and subsequently analysed using the Fisher Exact SPSS test with a 95% confidence level. **Results**: The results showed that patients had a good level of knowledge of as many as 32 people (76.2%) and had less knowledge of as many as 10 people (23.8%). The value of patient compliance in taking medication was 29 people (69%), and disobedient as many as 13 people (31%). **Conclusion**: The statistical analysis results indicated a statistically significant relationship between knowledge and compliance with medication in TB patients at Idaman Banjarbaru Hospital ($p < 0.05$). This implies that an individual's willingness to comply with medication regimens is significantly influenced by their knowledge about the prescribed treatment.

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INTRODUCTION

Tuberculosis (TB) is a major global health problem. Tuberculosis is a contagious infectious disease caused by the bacterium Mycobacterium tuberculosis. In 2021, there will be an estimated 10.6 million people with tuberculosis worldwide. Of these, 57% are men, 36% are women, and the remaining 7% are children. India has the highest incidence of TB in the world, followed by Indonesia. The number of TB cases in Indonesia will reach 384,000 cases in 2020 and 432,600 cases in 2021 (WHO, 2022).

Based on the health profile data of South Kalimantan Province, the number of TB cases from 2018 to 2020 amounted to 3,722 cases and continued to increase to 5,636 cases in 2020. The number of BTA+ TB cases in Banjarbaru City continued to increase from 2018-2020. In 2018, there were 211 TB cases, and continued to increase to 483 cases in 2020. With this number, Banjarbaru has the third-highest number of TB patients in South Kalimantan after Banjarmasin and Banjar Regency (South Borneo Provincial Health Office, 2021).

Discontinuation of TB treatment is caused by patients' low awareness about TB treatment and the cure process. Non-adherence increases the treatment failure rate of TB patients and leads to a growing number of BTA-positive TB patients who are resistant to conventional treatment. One of the causes of relapse is an irregular history of taking medication due to non-adherence, which enables drug resistance. Therefore, it is very important to monitor patients during TB treatment (Dermawanti, R Kinto Rochadi, 2014).

The factor that influences TB patients' adherence to treatment is knowledge. A person's knowledge is supported by their educational background, the higher a person's education, the more knowledge they have. A good level of knowledge encourages self-awareness to seek information about efforts to control TB disease transmission. Conversely, a low level of education affects the lack of understanding of efforts to control TB disease transmission, which can be an obstacle to patient compliance in following the necessary treatment (Gebreweld *et al*., 2018). Based on this, there is a need to research the relationship between knowledge and adherence to taking TB medication in adults at Idaman Banjarbaru Hospital.

MATERIAL AND METHODS

This study has passed the Health Research Ethics Committee of RSD Idaman Kota Banjarbaru with number RS00133/KEPK-RSDI/03/2023. The study was prospective with a cross-sectional design in the period March-June 2023. The place used for research was Idaman Banjarbaru Hospital, South Kalimantan. The population studied consisted of all adult patients diagnosed with pulmonary tuberculosis who received outpatient treatment at Idaman Banjarbaru Hospital and were currently undergoing OAT treatment starting from November 2022. The total sampling technique was used, and 42 individuals met the inclusion criteria, namely being TB patients receiving OAT treatment for at least

one month, having a minimum age of 15 years, and capable of completing an online survey. This study was conducted using an online questionnaire through the Google Form application®. The validated knowledge questionnaire consisted of 13 questions and utilized an adherence questionnaire, specifically the Morisky Medication Adherence Scale (MMAS-8). Validity Test: the results of the validity and reliability of the questionnaire on the level of knowledge about pulmonary TB disease have been carried out on adult pulmonary TB patients in the outpatient department of RSUD Ratu Zalecha Martapura. This was conducted on 20–18 March 2023, by sending a Google Forms link to respondents via WhatsApp to the knowledge level questionnaire with 30 respondents with the same characteristics. The validity test uses a confidence level of 95%. The results of the validity test on the knowledge level questionnaire indicated that 13 of the 15 questions tested were valid. This was determined by the r-count value, which exceeded 0.361. The validity test of the TB patient knowledge level questionnaire yielded 13 valid questions. The reliability of questionnaire: Subsequently, the aforementioned question items were subjected to a reliability test. In this study, the reliability test employed SPSS with the Cronbach's alpha method, with the decision-making process based on the criterion of a Cronbach's alpha value exceeding 0.6, thereby declaring the statement reliable. The results of the reliability test on the 13 statement items of the TB patient knowledge level questionnaire indicated a Cronbach's alpha value of 0.726 (>0.60) threshold, thereby confirming the questionnaire's reliability. Then the data were analyzed using SPSS 21 analysis with the Chi-Square test, utilizing the Fisher Exact Test with a 95% confidence level.

RESULTS AND DISCUSSION

Tabel 1 Patient characteristics

Age	Frequency (N)	Percentage (%)
15-55 years	31	73,8
> 55 years	11	26,2
Gender		
Male	22	52,4
Female	20	47,6
Last Education		
Elementary School	8	19
Junior High School	7	16,7
High School	11	26,2
Bachelor	16	38,1
Jobs		
Not working	20	47,6
Working	22	52,4
Total	**42**	**100**

Based on table 1 of a total of 42 patients showed the most age characteristics in the age category 15-55 years as many as 31 people (73.8%), while age> 55 years as many as 14 people (26.2%). The results

show that the more dominant age in patients is 15-55 years old with a percentage of 73.8%. Based on table 1 of the results of the frequency distribution of patient characteristics of TB patients at RSD Idaman Banjarbaru with a total of 42 patients, it can be seen that the productive age of 15-55 years has the largest number of 31 people with a percentage of 73.8%. TB tends to be contagious in productive age groups, this can be assumed because at that aged people tend to do activities outside the home, interact, and have high mobility so that the possibility of exposure to TB bacteria is greater (Rojali, 2018).

Based on the results of the study, shows that male patients are more dominant as many as 22 people (52.4%). According to the Ministry of Health (Indonesian Ministry of Health, 2021). The incidence of tuberculosis in men is 1.4 times higher than in females. This can occur because the level of mobility and activity outside of men is higher, so the possibility of exposure to TB bacteria is greater. Additionally, the majority of men are involved in extensive socializing and smoking, both of which can facilitate the spread of TB (Nurbaety *et al.,* 2020).

The study found that the majority of patients had completed undergraduate education (38.1%) and worked in jobs that involved direct interaction with others, with self-employed individuals such as traders being at a higher risk for contracting TB (Afryandes *et al*, 2020). Additionally, working in dusty environments with poor lighting and ventilation can increase the risk of respiratory tract disorders. All of these factors can contribute to the high number of tuberculosis cases among workers. Therefore, special attention needs to be given to efforts aimed at preventing and controlling this disease in the workplace (Nurbaety *et al*., 2020). Table 1 shows that the highest number of patients affected by tuberculosis graduated from college, with 16 people (38.1%) having this level of education. Not all individuals with higher education prioritize their health; some may neglect their well-being due to busy work schedules and activities, leading to changes in lifestyle, eating habits, and a lack of physical activity (Ramadhani & Khotami, 2023).

Tabel 2 Knowledge level of TB patients in RSD Idaman

Variable	Category	N	%
Knowledge	Good	32	76,2
	Less	10	23,8
Total		**42**	**100**

According to Table 2, out of the total 42 TB patients at Idaman Banjarbaru Hospital, the majority (76.2%) had a good level of knowledge. Therefore, it can be concluded that the level of knowledge of TB patients at Idaman Banjarbaru Hospital is good. The study's findings align with previous research conducted by (Bintang & Girsang, 2022) at a specialized lung hospital in Medan, which indicated that 96% of TB patients had a good understanding of tuberculosis.

Table 3. Knowledge questionnaire

No.	Question	Indicator	Percentage
1.	Pulmonary TB is a disease caused by the virus. (-)	Defined	31%
2.	Pulmonary TB disease can be transmitted through sputum droplets and sneezing of the patient(+)	Transmission	90,5%)
3	Pulmonary TB disease can only be suffered by adults (-)	Pathogenesis	78,6%
4.	A person can only suffer from TB once in a lifetime (-)	Pathogenesis	64,3%
5.	Anti-tuberculosis drugs should be stored in a refrigerator or humid place (-)	Treatment	57,1%
6.	Negligence in treatment can cause TB germs to become resistant to anti-tuberculosis drugs (+)	Treatment	85,7%
7.	Side effects while taking anti-tuberculosis drugs do not cause dizziness and nausea (-)	Treatment	57,1%
8.	If the patient finds red urine after taking anti-tuberculosis drugs (OAT), there is no need to worry because it is a side effect of TB drugs (+)	Treatment	97,6%
9.	TB germs are more easily transmitted in sparsely populated areas (-)	Transmission	76,2%
10.	Patients who forget to take their anti-tuberculosis drugs are allowed to double the dose the next time they take it (-)	Treatment	85,7%
11.	A person with TB also has red spots on the skin (-)	Symptoms	50%
12.	If you have complaints such as prolonged cough, tightness, coughing up blood, fever, weakness, no appetite are symptoms of tuberculosis (+)	Symptoms	95,2%
13.	If medication is not taken on time, treatment can be continued immediately without repeating from the beginning (-)	Treatment	54,8%

According to Lawrence Green's theory, as cited by (Ningsih, *et al*, 2022) knowledge is a predisposing factor that can impact an individual's health behavior. Individuals with a strong knowledge base actively seek out and filter health information related to their condition. This awareness can serve as a motivator for recovery. Education level is a key factor in determining an individual's knowledge level, as demonstrated by the study's findings that undergraduate education was the most influential. Individuals with a higher level of education are better equipped to comprehend information about tuberculosis disease, including its transmission and treatment. According to previous research conducted by (Muhammad, 2019), education positively correlates with the development of skills and mindset, making individuals more likely to understand and learn about tuberculosis disease. This study examined the level of patient knowledge regarding TB, including its definition, transmission, pathogenesis, symptoms, and treatment. The majority of participants (97.6%) answered correctly regarding the side

effects of TB therapy, while 90.5% answered correctly regarding transmission. Overall, the patients demonstrated good knowledge of TB, that look in the table 3.

Tabel 4 Patient Compliance and Knowledge Level

Knowledge Level	Adherence to medication				Total		Asymp. Sig
	Compliant		Non-compliant				
	F	%	F	%	F	%	
Good	26	81,3	6	18,8	32	100	0,005
Less	3	30	13	70	10	100	
Total	**29**	**69**	**13**	**31**	**42**	**100**	

According to table 3, the study on compliance with TB medication at Idaman Banjarbaru Hospital included 42 patients. The results indicate that 29 patients (69%) were compliant with their medication. (Agatha *et al*., 2019) identified several factors that affect treatment compliance in TB patients, including knowledge, family support, and patient attitudes. Health workers also provide education to TB patients and their families about TB treatment, including the use of anti-tuberculosis drugs, potential side effects, and the consequences of non-compliance, in order to improve compliance with treatment. This is also in accordance with research conducted by (Meyrisca & Susanti, 2022) which says that high compliance in treatment can provide therapeutic success. According to (Fitri, 2018) to achieve recovery, regularity or compliance with treatment is needed for each patient.

The study reveals a significant correlation between the level of knowledge and compliance with taking anti-tuberculosis drugs in TB patients at Idaman Banjarbaru Hospital, as shown in table 3. Out of the 32 TB patients with good knowledge, 26 (81.3%) demonstrated high compliance. According to table 3, statistical tests using the Fisher Exact test revealed a p-value of less than 0.05 with a 95% confidence level, indicating a correlation between the level of knowledge and compliance with taking TB medication in adult pulmonary tuberculosis patients at RSD Idaman Banjarbaru. Research conducted by (Nofrika *et al*., 2023) di RS Budi Lestari Bekasi dan (Barza *et al*., 2021) at Medika Dramaga Hospital supports the validity of the results of this study. Similar findings from previous studies strengthen the discussion and conclusion that there is a significant relationship between the level of knowledge and adherence to taking anti-tuberculosis drugs in TB patients. Social, cultural, and economic environmental factors can also influence the level of knowledge that TB patients possess, in addition to factors such as education, occupation, and age (Ningsih, *et al*., 2022).

In daily life, a good knowledge of TB disease and its treatment can help patients better understand the importance of adherence to treatment. With a good understanding, patients will realize the benefits of taking anti-TB drugs regularly and consistently to achieve recovery. Educational background can

support patients' knowledge of TB. According to (Retno *et al*., 2022). patients with a higher educational background tend to have better access to information about their disease, which may lead to greater adherence to treatment. The study found that the majority of patients with the highest level of education were graduates. Improved knowledge of pulmonary tuberculosis disease can help patients better understand explanations and accept information, leading to improved health.

CONCLUSION

The study found a significant correlation between patients' level of knowledge and their compliance with medication among TB patients in Idaman Banjarbaru Hospital with p-value <0.05. This implies that an individual's willingness to comply with medication regimens is significantly influenced by their knowledge about the prescribed treatment.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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